

Repression of Photomediated Morphology Change of Silver Nanoplate

김영훈*, 노진규¹

광운대학교 화학공학과; ¹광운대학교

(korea1@kw.ac.kr*)

Unique physicochemical properties of silver nanoparticles (AgNPs) give them the potential to be useful in many applications as sensors, catalysts, or sterilizers. Among the nano-consumer products by Woodrow Wilson Center, AgNPs is the most applicable material in commercial fields. To apply the raw materials in consumer products, stability of colloidal AgNPs must be assured. Among destabilizing factors such as temperature, pH, salt concentration, and light, the effect of room light irradiation on morphological change of AgNPs was investigated. Herein, we attempted to review the mechanism of photo-oxidation of AgNPs and citrate for light irradiation and suggest repression method for photomediated morphology change of AgNPs via addition of hydroxyl ions. Silver nanoplate (AgP) and silver nanosphere (AgS) were used and their surfaces were stabilized with citrate. Based on the TEM images, UV-vis spectra, and zeta potential, we found that additional OH⁻ successively acted as buffer to repress the photomediated morphology change of AgNPs.